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(54) Title: METHODS OF MAKING AND USING IPSC-DERIVED MURAL PROGENITOR CELLS VIA ACTIVATION OF NKX3.1

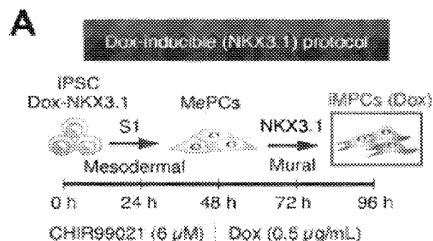


FIG. 1A

(57) Abstract: Described herein, *inter alia*, are compositions comprising and methods of making and using iPSC-derived mural progenitor cells (iMPCs) generated using NK3 Homeobox 1 (NKX3.1; a mural cell fate-determining transcription factor). Also described herein, *inter alia*, are methods maturing the iMPCs into functional mural cell subtypes, including smooth muscle cells, pericytes, and fibroblasts, as well as methods of increasing vascular development, angiogenesis, and cell junction via the iMPCs. The iMPCs mediate the formation of functional vessels when implanted with endothelial cells (ECs); thus, methods of administering iMPCs and ECs and methods of modeling vascular diseases (e.g., a 3D vascular organoid (VO)) and therapeutic vascularization comprising administering iMPCs and EC are also described herein.

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